

Information Technology Fundamentals		Course Code 270504			
Course Description					
<i>Students are introduced to the proper use of information technologies (IT). In addition, they will be introduced to hardware and software selection and use, technology resource support, and ethical issues. Students will investigate information technology careers and certifications in networking, programming, and IT support services. Units would include, but not be limited to, exploring concepts in networking, programming, and support services, computer hardware components and peripherals, system and application software, and impact of technology on society.</i>					
Program of Study to which the course applies:					
Information Technology Cluster					
Programming and Software Development Pathway					
Network and Telecommunications Systems Pathway					
Information Support and Services Pathway					
	Course Content	Crosswalk to Common Core Academic Standards	Crosswalk to Nebraska Academic Standards	Crosswalk to Nebraska Career Readiness Standards	Crosswalk Clarification
Standard 1	Students will identify the basic components of computer networks (e.g., servers, file protection, routing, shared resources).				
Benchmark 1.1	Define basic networking terminology.	ELA.RST.11-12.4	LA.12.1.5	N/A	
Sample Performance Indicator 1.1.1	Identify basic networking resources (e.g., router, server, network cards, modem).				
Sample Performance Indicator 1.1.2	Characterize network connectivity basis and transmission line applications (e.g., fiber optics, wired, wireless, analog and digital).				

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Benchmark 1.2	Identify the purpose of networks and their functionality.	N/A	N/A	CR.9.B.3	
Sample Performance Indicator 1.2.1	Identify the impact of the convergence of telephony, data, and video communications on networks.				
Sample Performance Indicator 1.2.2	Describe the issues that impact network functionality (e.g, latency, bandwidth, firewalls, server capability).				
Benchmark 1.3	Develop strategies to make an effective transition from school to career.	N/A	N/A	CR.10.A.2-3 CR.10.D.2	
Sample Performance Indicator 1.3.1	Develop an awareness of networking occupational opportunities using a variety of resources.				
Sample Performance Indicator 1.3.2	Investigate job openings, certifications, and earning potential in network and telecommunications.				
Sample Performance Indicator 1.3.3	Interview a network or telecommunication professional to discuss career opportunities.				
Standard 2	Students will demonstrate an understanding of programming and its usage in business and industry.				

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Benchmark 2.1	Explain the purpose and function of software development.	ELA.WHST.11-12.2.b ELA.SL.11-12.4	LA.12.2.1.b LA.12.3.1.a	CR.2.B.1 CR.2.C.1 CR.9.B.3	When students explain information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students’ written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11–12.2.b, ELA.SL.11–12.4; NE: CR.2.B.1, CR.2.C.1, LA.12 2.1.b, LA.12.3.1.a).
Sample Performance Indicator 2.1.1	Compare and contrast programming languages.				
Sample Performance Indicator 2.1.2	Summarize the steps in a program life cycle.				
Sample Performance Indicator 2.1.3	Identify the benefits of various programming Integrated Development Environments (IDE).				
Benchmark 2.2	Demonstrate the use of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), scripting languages, and common web page formats.	ELA.RST.11-12.3	LA.12.1.6.k LA.12.3.2	CR.1.A.4	Alignment presumes that students must comprehend oral or written instructions to complete the task (CC: ELA.RST.11–12.3; NE: LA.12.1.6.k, LA.12.3.2).
Sample Performance Indicator 2.2.1	Investigate design elements of professional websites.				
Sample Performance Indicator 2.2.2	Create a basic web page.				
Sample Performance Indicator 2.2.3	Compare and contrast scripting and programming languages.				
Benchmark 2.3	Develop strategies to make an effective transition from school to career.	N/A	N/A	CR.10.A.2-3 CR.10.D.2	
Sample Performance Indicator 2.3.1	Develop an awareness of programming occupational opportunities using a variety of resources.				

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Sample Performance Indicator 2.3.2	Investigate job openings, certification, and earning potential in the software development industry.				
Sample Performance Indicator 2.3.3	Interact with an industry programmer or software engineer to discuss career opportunities.				
Standard 3	Students will demonstrate an understanding about providing technology support to maintain service.				
Benchmark 3.1	Apply strategies for identifying and solving routine hardware and software problems.	ELA.RST.11-12.3	LA.12.1.6.k LA.12.3.2 SC.12.1.3.d	CR.1.A.4 CR.4.B.3 CR.9.B.1	Alignment presumes that students must comprehend oral or written instructions to complete the task (CC: ELA.RST.11–12.3; NE: LA.12.1.6.k, LA.12.3.2).
Sample Performance Indicator 3.1.1	Describe information systems problem-solving techniques and approaches.				
Sample Performance Indicator 3.1.2	Identify and use appropriate help resources (e.g., help desks, online help, manuals).				
Benchmark 3.2	Understand security, privacy, and risk management policies and procedures for information technology.	N/A	N/A	CR.9.C.1-3	
Sample Performance Indicator 3.2.1	Explore tools and methods for preventative maintenance (e.g., defrag, backups, checkdisk, updates, patches, upgrades, antivirus, anti-spyware).				
Sample Performance Indicator 3.2.2	Adhere to privacy, safety, and security policies and legislation (e.g., acceptable use policy, web page policy, student publication).				

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Benchmark 3.3	Develop strategies to make an effective transition from school to career.	N/A	N/A	CR.10.A.2-3 CR.10.D.2	
Sample Performance Indicator 3.3.1	Develop an awareness of IT support occupational opportunities using a variety of resources.				
Sample Performance Indicator 3.3.2	Investigate job openings, certifications, and earning potential in the information technology (IT) support industry.				
Sample Performance Indicator 3.3.3	Interact with a helpdesk technician or IT support technician to discuss career opportunities.				
Standard 4	Students will describe current and emerging hardware.				
Benchmark 4.1	Describe the principle components of the information processing cycle (e.g., input, ouput, processing, and storage).	ELA.WHST.11-12.2.b ELA.SL.11-12.4	LA.12.2.1.b LA.12.3.1.a	CR.2.B.1 CR.2.C.1	When students describe information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students’ written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11–12.2.b, ELA.SL.11–12.4; NE: CR.2.B.1, CR.2.C.1, LA.12 2.1.b, LA.12.3.1.a).
Sample Performance Indicator 4.1.1	Identify hardware components.				
Sample Performance Indicator 4.1.2	Identify hardware devices appropriate for specific tasks.				

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Sample Performance Indicator 4.1.3	Describe unique features of computers embedded in mobile devices.				
Sample Performance Indicator 4.1.4	Compare various forms of input and output.				
Benchmark 4.2	Develop criteria for purchasing or upgrading computer system hardware.	N/A	N/A	CR.4.A.2 CR.4.B.3	
Sample Performance Indicator 4.2.1	Research computer systems and make recommendations for purchase.				
Sample Performance Indicator 4.2.2	Install and configure hardware in a computer system.				
Standard 5	Students will identify, evaluate, and customize applications, operating system software, and utilities.				
Benchmark 5.1	Compare and contrast the functions, features, and limitations of different operating systems and utilities (e.g., open source, mobile, proprietary operating systems).	N/A	N/A	CR.4.A.2 CR.5.A.1	
Sample Performance Indicator 5.1.1	Describe various types of operating systems and utilities.				
Sample Performance Indicator 5.1.2	Navigate and customize operating systems features.				
Sample Performance Indicator 5.1.3	Install and customize operating systems and utilities.				

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Benchmark 5.2	Manage files and folders.	ELA.RST.11-12.3	LA.12.1.6.k LA.12.3.2	CR.1.A.4 CR.9.A.3	Alignment presumes that students must comprehend oral or written instructions to complete the task (CC: ELA.RST.11–12.3; NE: LA.12.1.6.k, LA.12.3.2).
Sample Performance Indicator 5.2.1	Create a hierarchical folder structure.				
Sample Performance Indicator 5.2.2	Demonstrate the appropriate use of files and folders including moving, copying, deleting, and renaming.				
Benchmark 5.3	Identify productivity software appropriate for specific tasks.	ELA.RST.11–12.4	LA.12.1.5	CR.9.B.1 CR.9.B.3	
Sample Performance Indicator 5.3.1	Use productivity software to create documents, research topics and take notes, categorize data, and perform calculations.				
Sample Performance Indicator 5.3.2	Retrieve and use information from a database.				
Sample Performance Indicator 5.3.3	Explain the nature and interrelationships of bytes, fields, records, and databases.				
Standard 6	Students will recognize the ethical and social implications of computer use.				
Benchmark 6.1	Demonstrate an understanding of appropriate and inappropriate social networking behaviors.	N/A	LA.12.4.1.g	CR.2.D.1-2 CR.9.C.1-3	
Sample Performance Indicator 6.1.1	Explain the risks and dangers of sharing personal information.				
Sample Performance Indicator 6.1.2	Evaluate and gain an understanding of security and privacy settings.				

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Sample Performance Indicator 6.1.3	Summarize the impact of cyberbullying on others.				
Benchmark 6.2	Demonstrate an understanding of the impact of computing technology on business and commerce.	N/A	SC.12.1.2.b	CR.5.A.4 CR.9.B.2	
Sample Performance Indicator 6.2.1	List types of technologies used throughout business and commerce.				
Sample Performance Indicator 6.2.2	Describe the major types of e-commerce.				
Sample Performance Indicator 6.2.3	Discuss the importance of backups and recovery plans.				
Benchmark 6.3	Analyze the positive and negative impacts of technology on culture.	N/A	SC.12.1.2.b	CR.5.A.1 CR.5.A.4 CR.8.C.2	
Sample Performance Indicator 6.3.1	List the changes in technologies over time and the effects on education, workplace, and society.				
Sample Performance Indicator 6.3.2	Gain an understanding of the Digital Divide.				

Reference Sheet

Key Code Source

CCTC	2012 Common Career Technical Core
CSTA	Computer Science Teachers Association Standards - Revised 2011
NBEA	National Business Education Association Standards (2007)
APCS	AP Computer Science A - College Board Course Description

Additional Resources for Educators

Suggestions for innovative teaching and learning strategies <http://csta.acm.org/Curriculum/sub/K12Standards.html> Computer Science Teachers Association

- Build a computer and install an operating system
- Make or identify crossover vs straight-through cables
- Install Wubi (runs Ubuntu operating system (OS) as an application in Windows) <http://wubi.sourceforge.net/>
- Install Oracle VM VirtualBox (allows guest OS to be run as an application on the host OS) <https://www.virtualbox.org/>

Related Assessments IC Citizen Certification (IC3) <http://www.certiport.com>

Extended Learning Opportunities

- VEX Robotic Competition
- Ubuntu (open source operating system) <http://www.ubuntu.com/>
- SIW System Information for Windows <http://www.gtopala.com/>
- Toms Hardware: The Authority on Tech <http://www.tomshardware.com/>
- PC World Magazine <http://www.pcworld.com/>
- Newegg <http://www.newegg.com/>
- Tiger Direct <http://www.tigerdirect.com/>
- Hardware/Software Reviews <http://reviews.cnet.com/>
- Open source software resouces <http://www.opensource.org/>
- Virtual Box <https://www.virtualbox.org/>
- Intro to Ubuntu (use and install) <http://wubi.sourceforge.net/>
- CompTIA: Get IT Certified <http://certification.comptia.org/getCertified.aspx>
- IT Resource <http://www.engadget.com/>
- IT Resource <http://gizmodo.com/>
- IT Blog and Resource <http://slashdot.org/>
- IT Resource and tutorials <http://www.pctechguide.com/>
- Central Community College - Information Technology Website <http://www.cccitnow.com/>
- Massachusetts Institute of Technology (MIT) Open CourseWare <http://ocw.mit.edu/high-school/introductory-mit-courses/computers-and-electronics/>

Professional Development Opportunities Web Development tutorials <http://www.w3schools.com/>

Community Links/Resources available

- Nebraska Department of Labor <http://dol.nebraska.gov/>
- Career Link <http://careerlink.com/>
- Association for Computing Machinery <http://www.acm.org/>

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